$$\mathrm{Tor}_i^R(M,N) := H_i\left((P \xrightarrow{\sim} M) \otimes_R N\right) = H_i\left(M \otimes_R (Q \xrightarrow{\sim} N)\right)$$

projective resolution

projective resolution

$$\mathrm{Ext}^i_R(M,N) := H^i\left(\mathrm{Hom}_R(M, N \xrightarrow{\sim} E)\right) = H^i\left(\mathrm{Hom}_R(P \xrightarrow{\sim} M, N)\right)$$

injective resolution

projective resolution